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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/941,247	08/28/2001	Roland A. Wood	H0002238	5916

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EXAMINER

CREPEAU, JONATHAN

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 10/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/941,247

Applicant(s)

WOOD, ROLAND A.

Examiner

Jonathan S. Crepeau

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,9-15,17-26 and 28-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36 is/are allowed.
- 6) ☒ Claim(s) 1-4,6,9-15,17-20,22-26,28-32,34,35 and 37-39 is/are rejected.
- 7) ☒ Claim(s) 5,21 and 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1-6, 9-15, 17-26 and 28-37 and newly added claims 38 and 39. Claim 36 is allowed, and claims 5, 21, and 33 are objected to as containing allowable subject matter. New grounds of rejection are applied to claims 1-4, 6, 9-15, 17-20, 22-26, 28-32, 34, 35, and 37-39; however these grounds were not necessitated by amendment. Accordingly, prosecution is reopened and this action is non-final.

Claim Objections

2. The status identifier of claim 36 is incorrect. It should read "(Previously Presented)". Correction is required. In claims 10 and 34, "at least one device" should be changed to "at least one valve" to properly limit the parent claims.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 15, 17, and 31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the

relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 15 recites a pump, claim 31 recites a pumping step, and claim 17 recites porous plugs. However, these recitations appear to be mutually exclusive with the recitation of a valve in claims 1 and 22. The specification indicates that a pump represents an alternative embodiment to a valve and that porous plugs also represent an alternative embodiment to a valve (paragraphs [0019] and [0020]). There is no indication that Applicants had possession of a system that simultaneously contained two or more elements selected from a valve, a pump, and a porous plug located between the water vapor generator and the fuel cell. As such, claims 15, 17, and 31 are considered to contain new matter.

Claim Rejections - 35 USC § 102

5. Claims 1-4, 6, 9-12, 15, 18, 22-26, 28-31, 34, 35, and 37-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Kerrebrock et al (U.S. Patent 5,372,617). The reference teaches an electrical power generator comprising and a fuel cell attached to a hydrogen gas generator (22) via a conduit containing a valve (72) (see Fig. 4). The hydrogen gas generator contains a substantially non-fluid metal hydride material in a palletized or granular form (see col. 5, line 30). The material may comprise calcium hydride (see col. 5, line 34) or sodium borohydride (see col. 2, line 13). The system further comprises a water reservoir (64) that supplies water to the hydrogen generator via a pump (66) and a valve (68). In column 7, line 42, the reference teaches that a heater may be provided in the water feed line to generate steam for injection into the hydrogen generator. This is considered to be anticipatory of the claimed

“single chamber” water vapor generator. A return line from the fuel cell leads to the water reservoir (see Fig. 4).

Thus, the instant claims are anticipated.

6. Claims 35, 37, 38 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Werth (U.S. Patent 6,093,501). The reference teaches an electrical power generator comprising and a fuel cell attached to a hydrogen gas generator (15) via a conduit containing a pump (19) (see Fig. 2). The hydrogen gas generator contains a substantially non-fluid iron material. The system further comprises a water reservoir (18) that supplies water to the hydrogen generator via a pump (16). A heater (17) is provided in the water feed line to generate steam for the hydrogen generator (see col. 3, line 29). This is considered to be anticipatory of the claimed “single chamber” water vapor generator. A return line from the fuel cell leads to the water reservoir (see Fig. 2).

Thus, the instant claims are anticipated.

Claim Rejections - 35 USC § 103

7. Claims 13 and 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kerrebrock et al. in view of Suda (U.S. Patent 6,358,488).

Kerrebrock et al. is applied to claims 1-4, 6, 9-12, 15, 18, 22-26, 28-31, 34, 35, and 37-39 for the reasons stated above. However, the reference does not expressly teach that the hydrogen

generator comprises a catalyst such as cobalt, nickel, or ruthenium, as recited in claims 13 and 14.

Suda is directed to a method of generation of hydrogen gas involving metal hydrides and water. In column 4, line 24, the reference teaches that cobalt and nickel can be used as catalysts in the reaction.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated by the disclosure of Suda to use cobalt or nickel as a catalyst in the hydrogen generator of Kerrebrock et al. In column 4, line 17, Suda teaches that "it is essential in the inventive method that the reaction is promoted catalytically by a catalyst material brought into contact with the reaction medium." Accordingly, the artisan would be motivated to use cobalt or nickel as a catalyst in the hydrogen generator of Kerrebrock et al.

8. Claims 19, 20, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerrebrock et al. in view of Lehmeier et al (U.S. Patent 5,942,344).

Kerrebrock et al. is applied to claims 1-4, 6, 9-12, 15, 18, 22-26, 28-31, 34, 35, and 37-39 for the reasons stated above. However, the reference does not expressly teach that the fuel cell is heated with a heater, as recited in claims 20 and 32, or that the fuel cell is at least partially surrounded by insulation, as recited in claim 19.

Lehmeier et al. is directed to a high-temperature fuel cell surrounded by a heating element (12, 14) and insulation (9) (see the Figure; col. 3, line 49).

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Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the fuel cell of Lehmeier et al. and its associated heater and insulation in the system of Kerrebrock et al.

In column 2, line 14, Lehmeier et al. teaches the following:

It is accordingly an object of the invention to provide a high-temperature fuel cell system and a method for its operation, which overcome the hereinafore-mentioned disadvantages of the heretofore-known devices and methods of this general type and in which the high-temperature fuel cells are not polluted or damaged during heating.

Accordingly, the artisan would be motivated to use the fuel cell and associated components of Lehmeier et al. in the system of Kerrebrock et al. et al in hopes not polluting or damaging the fuel cell during heating.

Allowable Subject Matter

9. Claim 36 is allowed.
10. Claims 5, 21, and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
11. The following is a statement of reasons for the indication of allowable subject matter:

The reasons for allowance of claims 5 and 36 were previously given and remain applicable.

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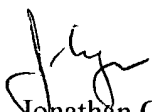
Regarding claims 21 and 33, Kerrebrock et al. is the closest prior art. However, the reference does not teach or fairly suggest a water vapor generator having a tensile membrane therein, as claimed.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached at (571) 272-1414. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau
Primary Examiner
Art Unit 1746
October 26, 2004